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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-------------------------------------|------------------------|
| 10/669,180 | 09/22/2003 | Glenn R. Fahmi JR. | TIMK 8694US | 4088 |
| 1688 7590 03/09/2007 POLSTER, LIEDER, WOODRUFF & LUCCHESI 12412 POWERSCOURT DRIVE SUITE 200 ST. LOUIS, MO 63131-3615 | | | EXAMINER KRAUSE, JUSTIN MITCHELL | |
| | | | ART UNIT 3682 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE 3 MONTHS | | | MAIL DATE 03/09/2007 | DELIVERY MODE PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/669,180

Applicant(s)

FAHRNI ET AL.

Examiner

Justin Krause

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 31-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/20/04, 3/22/04, 9/22/03</u> | 6) <input type="checkbox"/> Other: _____ |

Election/Restrictions

The restriction requirement mailed November 15, 2006 is hereby withdrawn.

Applicant has elected the embodiment of Figure 5 in response to the restriction mailed July 21, 2006, which is deemed to include generic figures 1, 3, 4 and 9, and figures 6, 7 and 8, which show the embodiment of figure 5. Applicant has elected claims 1, 3-10, and 16-23 and 45. The examiner is also including claims 2, 11-15, and 24-30 as being readable on the elected embodiment of Figure 5.

Information Disclosure Statement

The PTO-1449 filed March 22, 2004 contains a typographical error. JP 2001 33606 A should read JP 2001 336606 A, the examiner has correctly cited the reference on the attached PTO-892.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-30 and 45 are generally narrative, mixing positively recited structure with functional language such that is not clear what exactly should be given patentable weight. For clarity and readability, the examiner suggests re-writing the claims in

accordance with 37 CFR 1.75(i). Also regarding claims 1 and 45, it is unclear where the pre-amble ends and the body of the claim begins positively reciting structure.

The claims are replete with indefiniteness and grammatically awkward phrasing. Applicant is advised to review and amend all claims to clarify the invention. Some examples include but are not limited to the following:

The claims repeatedly utilize the pronoun "it" when referring to various elements. It is unclear at times what "it" is and the examiner recommends explicitly stating the element being claimed.

Claim 1: "[T]hat bearing where it is presented..." is awkward and it is unclear what "that bearing" is. "[T]he ring seat" lacks antecedent basis"

Claim 2: "[I]nclined downwardly" is unclear because the downward direction is relative. The bearing is round, making a portion incline downward and another portion incline upward simultaneously.

Claim 4: The phrase, "[L]ikewise presented outwardly away from the axis" is indefinite because it is unclear what arrangement, and what element is being claimed.

Claim 5: There is no antecedent basis for "the end" of the outer race.

Claims 8 and 9: "[L]oose fit" is relative and it is unclear what Applicant regards as "loose", also making unclear what is regarded as "more loose" indefinite.

Claim 16, it is unclear what element the phrase, "[B]ut is confined axially" limits.

Claim 17, [G]enerally smooth is unclear because it is unclear to what extent the surface must be smooth to be considered generally smooth.

Claims 19-21: "[L]oose fit" is relative and it is unclear what Applicant regards as "loose", also making unclear what is regarded as "more loose" indefinite.

Claim 21: "[I]t's ring seat" is indefinite because it is unclear what "it" is and "the ring seat" lacks antecedent basis because it is unclear if it relates to "it's ring seat" or some other ring seat.

Claim 22: The orientation described by "[P]resented toward the large ends of the rollers in the other bearing and visa versa" is unclear. "[T]he one bearing" and the other bearing lack antecedent basis.

Claim 28: "[T]he small end of the raceway" lacks antecedent basis.

Claim 45: The phrase, "[A] bearing located within each bearing seat and around the stub shaft that projects into the seat..." is indefinite because it is unclear what element projects into the seat. "[T]hat bearing", lacks antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-9, 11, 16-22 and 45, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Yokota (JP 2001-336606).

Yokota discloses a bearing arrangement in a differential comprising an internal thread (32a) in a bearing seat (32) and a bearing (see fig 1) located with the bearing seat and around the stub shaft (341a) that projects into the seat, including an outer race (11) having an outer raceway that is presented inwardly and included with respect to the axis and an external thread (11d) that is coupled with the internal thread of the ring seat in which the bearing is located each bearing also including an inner raceway (12) presented outwardly toward the outer race and inclined in the same direction as the outer race, further including rolling elements (13) the raceways being inclined in opposite directions causing the bearings to confine the carrier and be capable of adjusting the position of the ring gear by rotating the outer race in the seat.

Regarding claim 3, the raceways are inclined downwardly away from the carrier.

Regarding claim 4 and 17, the outer race has a cylindrical surface (unthreaded portion) that is generally smooth, adjacent the external thread on the race.

Regarding claim 5, the thread is located at the end of the outer race with the smaller diameter and the cylindrical surface is at the end with the larger diameter.

Regarding claim 6, the crests of the external threads project outwardly beyond the cylindrical surface.

Regarding claim 7 and 18, the cylindrical surface of each race lies along the internal threads of the bearing seat.

Regarding claims 8, 9, and 19-21, the outer race is located in its bearing seat with a loose fit, and the external thread on that race engages the internal thread of the bearing seat with a fit that is more loose than the fit between the cylindrical surface and the internal thread.

Regarding claim 11, a ring (11a) is attached to the outer race and has at least one formation (11c) for engaging a tool.

Regarding claim 22, the bearings are mounted with the large ends of the tapered rollers in the one bearing presented toward the large ends of the rollers in the other bearing.

Claims 1-3, 11, 12, 15, 16, 24, 25, and 27-30, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Turner et al (US Patent 6,659,651).

Turner discloses a bearing arrangement in a differential comprising an internal thread (58) in a bearing seat (68) and a bearing (see fig 1) located with the bearing seat and around the stub shaft (32) that projects into the seat, including an outer race (76) having an outer raceway that is presented inwardly and included with respect to the axis and an external thread (84) that is coupled with the internal thread of the ring seat in which the bearing is located each bearing also including an inner raceway presented outwardly toward the outer race and inclined in the same direction as the outer race, further including rolling elements (72) the raceways being inclined in

opposite directions causing the bearings to confine the carrier and be capable of adjusting the position of the ring gear by rotating the outer race in the seat.

Regarding claims 2 and 24, the bearing includes a locking ring (40) attached to the outer race and engaged with the housing.

Regarding claim 3, the raceways are inclined downwardly away from the carrier.

Regarding claim 11, the bearing includes a ring (40) attached to its outer race and has a formation (94 or 96) permitting a tool to engage the ring.

Regarding claims 12 and 15, the ring may be attached with pins or screws (col 4, lines 52-54).

Regarding claim 25, the cup has axially directed holes (110) which open out to an end for the locking pins to fit tightly into.

Regarding claim 28, Turner discloses an automotive differential comprising a cup (76) having an axis and including an external thread (84) and a back face at the small end of the raceway where it is located at substantial angles with respect to the raceway and the axis, a ring (40) attached to the cup at the back face having formations (94 or 96) enabling it to be engaged by a tool.

Regarding claim 29, the back face is perpendicular to the axis.

Regarding claim 30, the ring is formed from a material that may be deformed into engagement with the housing.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota as applied to claims 4 and 17 above, further in view of Scudder et al (US Patent 5,269,731).

Yokota does not disclose each bearing seat including a half bore and initially separate cap.

Scudder teaches a bearing seat including a half bore (10) and an initially separate cap (28) for the purpose of assembling the bearings into the housing (col 3, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yokota to include a half bore and initially separate cap for the desired purpose of assembling the bearings into the housing as taught by Scudder.

Claims 2, 24, 26 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yokota as applied to claims 1 and 16 above, and further in view of Turner et al (US Patent 6,659,651).

Yokota does not disclose a ring attached to the outer race, a formation for engaging a tool. Yokota however, disclose a formation for engaging a tool integrally formed on the outer race.

Turner teaches a ring (88) attached to the outer race with a formation (94 or 96) for engaging a tool (col 4, line 57) for the purpose of rotating and aligning the bearing assembly (col 4, line 55 – col 5, line 6).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Yokota to include a ring attached to the outer race with a formation for attaching a tool for the desired purpose of rotating and aligning the bearing assembly as taught by Turner.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turner.

Turner discloses a ring attached to the outer race by a variety of methods. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Turner and attach the ring to the outer race by welding or with adhesive, the employment of welding or adhesive solves the same purpose and are obvious variants of attachment means.

Conclusion

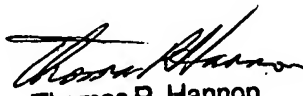
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin Krause whose telephone number is 571-272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JMK
3/11/07
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Thomas R. Hannon
Primary Examiner